

FORM PTO-1390 (REV. 1-98)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER G-79
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371			U.S. APPLICATION NO. (If known, see 37 CFR 1.5) 09/857754
INTERNATIONAL APPLICATION NO. PCT/FR99/03032	INTERNATIONAL FILING DATE December 7, 1999	PRIORITY DATE CLAIMED December 9, 1998	
TITLE OF INVENTION Contactless Electronic Communication Device With Optional Auxiliary			
APPLICANT(S) FOR DO/EO/US Power Sources			
DEFFONTAINES, Thierry; RINCEL, Philippe; and CAYE, Nathalie			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
<ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1). 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) <ol style="list-style-type: none"> a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input checked="" type="checkbox"/> has been transmitted by the International Bureau. PCT/IB/304 c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). (17 pages) 7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) <ol style="list-style-type: none"> a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). (not signed) 10. <input type="checkbox"/> A translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). 			
Items 11. to 16. below concern document(s) or information included:			
<ol style="list-style-type: none"> 11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. PTO 1499 (2x) 12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. Please enter before calculating the filing fee. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input type="checkbox"/> A substitute specification. 15. <input type="checkbox"/> A change of power of attorney and/or address letter. 16. <input type="checkbox"/> Other items or information: 			

U.S. APPLICATION NO. (if known) 09/857754		INTERNATIONAL APPLICATION NO. PCT/EP99/03032		ATTORNEY'S DOCKET NUMBER G-79	
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<p>17. <input type="checkbox"/> The following fees are submitted:</p> <p>BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):</p> <p>Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1070.00</p> <p>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$930.00 860.-</p> <p>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$790.00</p> <p>International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$720.00</p> <p>International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) \$98.00</p> <p style="text-align: center;">ENTER APPROPRIATE BASIC FEE AMOUNT =</p> <p>Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">CLAIMS</th> <th style="width: 20%;">NUMBER FILED</th> <th style="width: 20%;">NUMBER EXTRA</th> <th style="width: 20%;">RATE</th> <th style="width: 20%;">\$</th> </tr> </thead> <tbody> <tr> <td>Total claims</td> <td>9 - 20 =</td> <td>0</td> <td>x \$22.00</td> <td>\$ -</td> </tr> <tr> <td>Independent claims</td> <td>1 - 3 =</td> <td>0</td> <td>x \$82.00</td> <td>\$ -</td> </tr> <tr> <td colspan="3">MULTIPLE DEPENDENT CLAIM(S) (if applicable)</td> <td>+ \$270.00</td> <td>\$ -</td> </tr> <tr> <td colspan="4" style="text-align: right;">TOTAL OF ABOVE CALCULATIONS =</td> <td>\$ 860</td> </tr> <tr> <td colspan="4">Reduction of 1/2 for filing by small entity, if applicable. A Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28).</td> <td>\$ +</td> </tr> <tr> <td colspan="4" style="text-align: right;">SUBTOTAL =</td> <td>\$</td> </tr> <tr> <td colspan="4">Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).</td> <td>\$</td> </tr> <tr> <td colspan="4" style="text-align: right;">TOTAL NATIONAL FEE =</td> <td>\$ 860</td> </tr> <tr> <td colspan="4">Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +</td> <td>\$</td> </tr> <tr> <td colspan="4" style="text-align: right;">TOTAL FEES ENCLOSED =</td> <td>\$ 860</td> </tr> <tr> <td colspan="4" rowspan="2"></td> <td>Amount to be refunded:</td> <td>\$</td> </tr> <tr> <td>charged:</td> <td>\$</td> </tr> </tbody></table>				CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$	Total claims	9 - 20 =	0	x \$22.00	\$ -	Independent claims	1 - 3 =	0	x \$82.00	\$ -	MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$270.00	\$ -	TOTAL OF ABOVE CALCULATIONS =				\$ 860	Reduction of 1/2 for filing by small entity, if applicable. A Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28).				\$ +	SUBTOTAL =				\$	Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$	TOTAL NATIONAL FEE =				\$ 860	Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$	TOTAL FEES ENCLOSED =				\$ 860					Amount to be refunded:	\$	charged:	\$	<p>CALCULATIONS PTO USE ONLY</p>	
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a. ☒ A check in the amount of \$ **860.-** to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **16-2128**. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO

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JUN - 7 2001

 SIGNATURE
ROLAND PLOTTEL

 NAME
20,707

 REGISTRATION NUMBER

212 489-7073

09/857754

531 Rec'd PCT 07 JUN 2001

Atty. Dkt. G-79

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : DEFFONTAINES, Thierry; RINCEL, Philippe;
and CAYE, Nathalie
Serial No. :
New U.S. Appl. :
Based on PCT/FR99/
03032 :
Confirmation No: ✓
Examiner : ✓
Filed : ✓
GAU : ✓
For :

JUN - 7 2001

PRELIMINARY AMENDMENT A

This is a preliminary amendment accompanying a new
application PCT/US/EO.

Please amend:

IN THE CLAIMS:

Rewrite all the claims 1 through 9 to read as follows.

Note: In accordance with 37 C.F.R. §1.121, there is
attached to this amendment a marked up version showing
changes made in the claims previously on file.

1. (Amended) A contactless electronic electromagnetic
communication device comprising a module (MC), said module
having

- means (10) receiving electromagnetic signals,
- means (18, 20, 24) for processing the received
electromagnetic signals, and

7 - means (26) for rectifying and filtering the received
8 electromagnetic signals and supplying at two output
9 terminals (A, B), a supply voltage (V_{CC}) to the processing
10 means (18, 20, 24),

11 - means (PC, MO, TM 138) for supporting an electrical
12 power source (48, 70), and

13 - means (36, 38, 56, 58, 80, 82, 100, 102, 104, 106,
14 132, 140) for connecting said electrical power source (48,
15 70) to said output terminals (A and B) of the rectifying and
16 filtering means (26).

2. (Amended) The device according to Claim 1, wherein
the connection means comprises a switch (60, 86, 110, 134,
142) for establishing and cutting off the connection between
the power source (48, 70) and the terminals (A, B) of the
rectifying and filtering means (26).

3. (Amended) The device according to Claim 2, wherein
the connection means comprises:

- in the module (MC), conductors (32, 34) for
connecting the output terminals (A, B) of the rectifying and
filtering means to first contact terminals (36, 38, 82, 104,
106),

- in the support means, conductors (50, 52) for connecting the electrical power source (48, 70) to second contact terminals (56, 58, 80, 100, 102, 132, 140), and
- means for connecting and holding together the said first and second contact terminals.

4. (Amended) The device according to Claim 3, wherein said module (MC) is mounted in a bank card and

- the means for supporting the electrical power source comprises a card holder (PC), and
- the means for connecting and holding said first (36, 38) and second (56, 58) contact terminals comprises means for guidance and abutment (42, 44, 46) for the card (40) in the card holder (PC) so as to make the said first and second contact terminals coincide.

5. (Amended) The device according to Claim 3, wherein said module (MC) is disposed in a case (84), and

- the means for supporting the electrical power source comprises a watch (MO) having an electrical power source (70),
- the first contact terminals comprise a connector (82) disposed on the module,

- the second contact terminals comprise a connector (80) disposed on the case (72) of the watch (MO), and
- said connectors (80, 82) cooperate with each other to establish electrical connections and are being held in this position by holding means (88, 90).

6. (Amended) The device according to Claim 3 wherein said module (MC) is disposed in a case (108), and

- the means for supporting the electrical power source comprises a watch (MO) having an electrical power source (70),
- the first contact terminals comprise studs (104, 106) disposed on a bottom of the module (MC), and
- the second contact terminals comprise studs (100, 102) disposed on a rear face of the watch case,
- the means for connecting and holding the said first and second terminals comprises lugs (102, 104) carried on an outside surface of the module (MC), which lugs snap into corresponding housings (116, 118) in a rear face of the watch case.

7. (Amended) The device according to Claim 3 wherein said module (MC) is disposed in a case (130), and

- the means for supporting the electrical power source comprise a mobile telephone apparatus (TM) having studs (132) connected to a rechargeable electrical battery,

- the second contact terminals comprise said studs (132) for recharging the battery of the mobile telephone apparatus (TM), and

- the first contact terminals comprise studs which cooperate with the recharging studs (132).

8. (Amended) The device according to Claim 3, wherein said module (MC) is disposed in a bank card (40), and

- the means for supporting the electrical power source comprise a mobile telephone apparatus (138) having a connector (140) designed to cooperate with the contacts of the bank card,

- the card and the module (MC) comprise the first contact terminals,

- the connector (140) comprises the second contact terminal connected to the electrical power source, and

- the connection between the first and second contactless terminals is effected by inserting the card (40) in the connector (140).

Serial No. _____
Preliminary Amendment A
Page 7

REMARKS

This is a preliminary amendment accompanying a new application. The amendment removes multiple dependent claims and puts the claims in proper format, and some changes have been made to improve form and wording.

Respectfully submitted,

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JUN - 7 2001

212 489-7073

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Certificate under 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States postal service as first-class mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231 on _____.

Roland Plottel
PTO 20707

CLAIMS

1. A contactless electronic electromagnetic communication device ~~[of the type]~~ comprising ~~[in]~~ a module (MC), *said module having*

- 5 - means (10) ~~for~~ receiving electromagnetic signals,
 - means (18, 20, 24) ~~for~~ processing the
 electromagnetic signals received and
 - means (26) ~~for~~ rectifying and filtering the
 electromagnetic signals received ~~in order to supply~~ *and supplying* at
 10 two output terminals (A, B), a supply voltage (V_{cc}) to
 the processing means (18, 20, 24),

~~[characterised in that it also comprises]~~

- means (PC, MO, TM 138) ~~for~~ supporting an
 electrical power source (48, 70), and

- 15 - means (36, 38, 56, 58, 80, 82, 100, 102, 104,
 106, 132, 140) ~~for~~ connecting ~~[the]~~ said electrical power
 source (48, 70) to ~~[the]~~ said output terminals (A and B)
 of the rectifying and filtering ~~[circuit]~~ *means* (26).

2. ~~The~~ *wherein* device according to Claim 1, ~~characterised~~
 20 ~~in that~~ the connection means comprise^s a switch (60, 86,
 110, 134, 142) for establishing ~~or~~ *and* cutting off the
 connection between the power source (48, 70) and the
 terminals (A, B) of the rectifying and filtering
 ~~[circuit]~~ *means* (26). *The*

25 3. ~~The~~ *wherein* device according to Claim ~~[1 or]~~ 2,
 ~~characterised in~~ that the connection means comprise^s:

- in the module (MC), conductors (32, 34) for
 connecting the output terminals (A, B) of the

rectifying and filtering ^{means} ~~/circuit~~ to first contact terminals (36, 38, 82, 104, 106),

- in the support means, conductors (50, 52) for connecting the electrical power source (48, 70) to second contact terminals (56, 58, 80, 100, 102, 132, 140), and

- means for connecting ^{and holding} together the said first and second contact terminals.

4. ~~The~~ ^{wherein said} device according to Claim 3, ~~in its~~ application to a ~~contactless~~ ^{is mounted in} module (MC), ~~carried by a~~ card of the bank type, characterised and

- ~~[in that]~~ ^{for} the means of supporting the electrical power source comprise ^s a card holder (PC), and

- ~~in that~~ ^{for} the means of connecting and holding ~~[the]~~ said first (36, 38) and second (56, 58) contact terminals comprise ^s means ^{for} of guidance and abutment (42, 44, 46) for the card (40) in the card holder (PC) so as to make the said first and second contact terminals coincide.

5. ~~The~~ ^{wherein said} device according to Claim 3, ~~in its~~ application to a ~~contactless~~ ^{is} module (MC), ~~disposed in a~~ case (84), characterised and

- ~~[in that]~~ ^{for} the means of supporting the electrical power source comprise ^s a watch (MO) having ^a ~~its own~~ electrical power ^{source} (70),

- ~~[in that]~~ the first contact terminals comprise a connector (82) disposed on the ~~[case (84) of the]~~ module,

- ~~[in that]~~ the second contact terminals comprise a connector (80) disposed on the case (72) of the watch (MO), and

- ~~[the]~~ said connectors (80, 82) cooperate with each other ~~[in order]~~ to establish ~~[the]~~ electrical connections and ^{are} being held in this position by holding means (88, 90).

6. ~~A~~ ^{the} device according to Claim 3 ^{wherein} ~~[in its application to a contactless]~~ module (MC) ^{is} disposed in a case (108), ~~characterised:~~ ^{and}

- ~~in that~~ the means ~~for~~ supporting the electrical power source comprise a watch (MO) having ^a ~~its own~~ electrical power ^{source} (70),

- ~~in that~~ the first contact terminals comprise studs (104, 106) disposed on ²~~the~~ bottom of ~~the case of~~ the module (MC), and

- ~~[in that]~~ the second contact terminals comprise studs (100, 102) disposed on ^a[the] rear ^{face} of the watch case,

- [in that] the means ^{for} ~~of~~ connecting and holding the said first and second terminals comprise ⁵ lugs (102, 104) carried ^{on an outside surface} [by the case (108)] of the module (MC), which ^{lugs} snap into corresponding housings (116, 118) in ^{face} [the] rear of the watch case.

7. ~~The~~ ^{wherein said} device according to Claim 3 ~~/in its~~
~~application to a contactless~~ module (MC)^{is} disposed in a
case (130), ~~characterised: and~~

- ~~in that~~ the means ^{for} supporting the electrical power source comprise^s a mobile telephone apparatus (TM) having studs (132) connected to a rechargeable electrical battery,

- ~~in that~~ the second contact terminals comprise ~~the~~ studs (132) for recharging the battery of the mobile telephone apparatus (TM), and

- ~~in that~~ the first contact terminals comprise studs which cooperate with the recharging studs (132).

8. ~~The~~ A device according to Claim 3, ~~in its application to a contactless module (MC) carried by a card of the bank type (40), characterised and~~ *where in said*

- ~~in that~~ the means ^{for} of supporting the electrical power source comprise a mobile telephone apparatus (138) having a connector (140) designed to cooperate with the contacts of ~~a card of the bank type~~, *and*

- ~~in that~~ the card ~~supporting the contactless~~ *and The* module (MC) comprises the first contact terminals,

- ~~in that~~ the connector (140) comprises the second contact terminals connected to the electrical power source, and

- ~~in that~~ the connection between the first and second contactless terminals is effected by inserting the card (40) in the connector (140).

9. ~~The~~ A device according to ~~any one of the preceding Claims 1 to 6, characterised in that~~ *where in* the electrical power source is a removable battery.

Contactless electronic communication device with
optional auxiliary power source

5 The invention relates to contactless electronic communication systems in which at least one electronic communication device without an internal electric power source carried by a user communicates, by means of electromagnetic signals, with an electronic interrogation/reading/writing device.

10 Such contactless electronic communication systems are used, for example, for controlling access to ski runs, premises, garages, public transportation, etc, since the absence of any contact increases the speed of passage of the users whilst allowing exchange of information between the electronic device carried and
15 the interrogation/reading/writing device so as to manage access according to certain criteria.

The electronic interrogation/reading/writing device emits electromagnetic signals, for example at radio frequency, which are detected by the electronic

communication device carried by the user and serve on the one hand as a transmission medium for the information to be exchanged and on the other hand as an energy source for the electrical power supply to the electronic communication device. To this end, the latter comprises, for example, as shown in the simplified diagram in Figure 1, an antenna 10 consisting of a resonant circuit 12 comprising a coil 14 and a capacitor 16. The radio frequency signals received by the antenna 10 coming from the interrogation/reading/writing device are applied to a demodulator 18 which detects the low-frequency modulation signals containing the binary information transmitted by the interrogation/reading/writing device.

These binary information signals are processed by a digital processing circuit 20 in order to interpret them and if necessary produce a response in the form of binary signals which are transmitted to the interrogation/reading/writing device via a modulator 24 represented by a switch 22 and a load impedance (30) connected to the terminals of the resonant circuit 12.

The radio frequency signals detected by the antenna 10 are also applied to a rectifying and filtering circuit 26 which supplies, at the terminals A and B, a supply voltage V_{cc} to the circuits 18, 20 and 24.

The contactless electronic communication device according to the diagram in Figure 1 is produced in the form of a microcircuit 28 disposed in a plastic card,

of the bank card type, the coil 14 of the antenna being disposed along the periphery of the card, the whole constituting a communication module MC.

5 It should be noted that the capacitor 16 is produced partly in the microcircuit 28 and partly outside it with a view to the tuning adjustment of the resonant circuit 12.

10 Such a microcircuit can also be disposed in the case of a watch, the material of the case being designed to allow passage of the electromagnetic signals to the antenna inside the case.

15 Such contactless electronic communication systems have the major drawback that their operating distance is limited, for example a few tens of centimetres at the frequency of 13.56 MHz in read/write mode, because of the inadequacy of the electrical supply power which is actually available for the microcircuit, beyond a certain distance between the interrogation/reading/writing device and the antenna.

20 In addition, this inadequacy of the electrical supply power limits the speed and therefore the calculation power of the microcircuit, which does not make it possible to implement complex transactions requiring major data processing and/or cryptographic calculations for the purpose of security in a short
25 interval of time.

30 Moreover, it is not possible to increase the radiation energy of the interrogation/reading/writing devices since their power is limited so as not to interfere with adjacent installations and the

environment in general, in accordance with current regulations.

The purpose of the invention is therefore to produce a contactless electronic communication device
5 which has a maximum operating distance and a calculation power which are greater than those of the devices of the prior art.

This aim is achieved by modifying the contactless electronic communication device so that it can be
10 connected to an electrical power source of a normal object, such as an electric battery, disposed on a support such as a card holder or a watch.

The invention therefore relates to a contactless electronic electromagnetic communication device of the
15 type comprising in a module:

- means of receiving electromagnetic signals,
 - means of processing the electromagnetic signals received, and
 - means of rectifying and filtering the
20 electromagnetic signals received in order to supply, at two output terminals, a supply voltage to the processing means,
- characterised in that it also comprises
- means of supporting an electrical power source,
25 and
 - means of connecting the said electrical power source to the said output terminals of the rectifying and filtering circuit.

The connection means also comprise a switch for
30 establishing or cutting off the connection between the

power source and the terminals of the rectifying and filtering circuit.

The connection means comprise:

- in the module, conductors for connecting the output terminals of the rectifying and filtering circuit to first contact terminals,
- in the support means, conductors for connecting the electrical power source to second contact terminals, and
- means for connecting together the said first and second contact terminals.

When the module is carried by a card of the bank type

- the means of supporting the electrical power source comprise a card holder, and
- the means of connecting the said first and second contact terminals comprise means of guiding and holding the card in the card holder so as to make the said first and second contact terminals coincide.

When the module is disposed in a case

- the means of supporting the electrical power source comprise an object such as a watch with an electric battery,
- the first contact terminals comprise a connector disposed on the case of the module,
- the second contact terminals comprise a connector disposed on the watch case, and
- the said connectors cooperate with each other in order to establish electrical connections and being held in this position by holding means carried by the

case of the module and the object supporting the electrical power source.

The connectors can be studs which are situated opposite each other or connectors of the male/female type.

Where the supporting object is a portable mobile telephone, the battery charging terminals are used for establishing the connection between the battery and the module.

Other characteristics and advantages of the invention will emerge with the description of some of its embodiments, this being given with reference to the accompanying drawings, in which:

- Figure 1 is a functional electronic diagram of an electronic communication device having characteristics of the invention,

- Figures 2A and 2B show a microcircuit card implementing a contactless electronic communication device and a card holder according to the invention, the latter being able to receive the card of Figure 2A,

- Figure 3 is a plan view of a watch containing an electric battery,

- Figure 4 is a right-hand view of the watch of Figure 3,

- Figure 5 is a view from below of the watch of Figure 3,

- Figure 6 is a left-hand view of the watch of Figure 3,

- Figure 7 is a perspective view of a case containing a contactless communication module and

designed to adapt to a watch containing an electric battery,

- Figure 8 is a view in section of the case of Figure 7,

5 - Figure 9 is a view in exploded perspective of the case of Figure 7 and of the case of the watch containing the electric battery,

10 - Figure 10 is a view in exploded perspective of a variant combination between a case containing a communication module and a watch containing an electric battery,

- Figure 11 is a view in perspective from below of the case of Figure 10,

15 - Figure 12 is a view in perspective of a case containing a contactless communication module associated with a mobile telephone handset according to the invention, and

20 - Figure 13 is a view in perspective of a portable mobile telephone handset associated with a microcircuit card according to Figure 2A.

The diagram in Figure 1 of a contactless electronic device will not be described again for the elements known from the prior art.

25 To implement the invention, it must be modified in order to connect, via conductors 32, 34, the output terminals A and B of the rectifying and filtering circuit 26 with two contact terminals 36 and 38 disposed outside the module MC containing the microcircuit 28 and the resonant circuit antenna 10.

The so-called contactless communication module MC is normally housed in the thickness of a plastic card 40, the coil 14 of the antenna 10 being housed at the periphery of the card in one or more turns. According to the invention, the contact terminals 36 and 38 are disposed on the surface of the card 40.

The card 40 cooperates with a card holder PC so as to be inserted, by sliding for example, in raised grooves 42 and 44 with a stop 46. The card holder serves as a support for an electric battery 48 housed in the thickness of the card holder. The electrical terminals of the battery 48 are connected by conductors 50 and 52 housed in the thickness of the card holder, to contact terminals 56 and 58 disposed at the surface of the card holder so as to cooperate respectively with the contact terminals 36 and 38 of the card 40, it being understood that the card 40 in Figure 2A must be turned over in order to be inserted in the grooves 42 and 44.

The electrical connection between the electric battery 48 and the contact terminals 56 and 58 may be permanent or intermittent as required by the user provided that a switch 60 is connected in series, on the conductor 50 for example, which is handled by the user.

By means of this combination of the card 40 with the card holder PC, the microcircuit 28 is supplied with the voltage of the electrical battery 48, which can replace or possibly be added to the voltage supplied by the rectifying and filtering circuit 26.

The result is a supply voltage V_{cc} which is constant since it is independent of the distance between the card 40 and the interrogation/reading/writing device, giving rise to a greater maximum detection distance, a
5 longer period available for processing and a higher calculation speed.

There exist microcircuit cards known as "combicards" which are designed on the one hand to communicate with an interrogation/reading/writing
10 device at a distance but also on the other hand to communicate with an interrogation/reading/writing device with contacts. For this purpose, these combicards have a microcircuit 28 connected to contact terminals of the conventional type, for example
15 according to ISO 7816-2.

These combicards can be used in the context of the invention with the card holder PC provided that the contact terminals 56 and 58 have an arrangement in accordance with the aforementioned standard.

20 In general terms, the contact terminals 36 and 38 of the contactless card 40 and those 56, 58 of the card holder PC will comply with the standard, which ipso facto will allow the use of combicards by the card holder PC.

25 The switch 60 can be of the push button microswitch type housed in the thickness of the card holder, the push button being for example disposed on the face of the card holder opposite to the one receiving the card 40.

The electrical battery 48 is of the extra-flat type and is housed in a cavity in the card holder PC with a view to its possible replacement.

5 Naturally, the microswitch and its push button can be housed in the cavity of the extra-flat battery.

In the example embodiment of the invention according to Figures 2A and 2B, the contactless electronic module MC is carried by a plastic card 40 of the bank card type whilst the electrical battery 48 is carried by a card holder PC on which the card 40 is inserted so as to establish electrical contacts between the terminals 36, 38, 56 and 58.

15 The invention also applies to any contactless electronic module as modified in order to have contact terminals 36 and 38 so as to be connected to contact terminals of a battery carried by an object such as an electronic watch or a mobile telephone handset.

20 The object carrying the battery must be modified in order to have contact terminals equivalent to the terminals 56 and 58 of the card holder PC and the same applies to the contact terminals 36 and 38 of the modules in order to adapt to the terminals 56 and 58 of the object carrying the electrical battery. Figures 4 to 11 show two examples of combination between a contactless electronic module and a watch with electrical battery whilst Figures 12 and 13 show two examples of combinations between a contactless electronic module and a mobile telephone.

30 A watch M0 (Figures 3 to 11) of the electronic type comprises an electronic circuit (not shown), a

display device (62) with one or more dials 64, 66, 68 and an electrical supply battery 70, these three components being disposed in a case 72 provided on its periphery with various control buttons 74. The case 72 is held on the wrist by a bracelet 76 via connection articulations 78.

According to the invention, the electrical battery 70 is connected not only to the electronic circuit and to the dials but also to a connector 80 (Figures 3 to 9), of the female type for example, which is carried by the lateral part of the watch case 72. This connector 80 cooperates with a male connector 82 carried by a case 84 containing the microcircuit 28, the antenna coil 14 and the electrical conductors 32 and 34. A microswitch 86 is connected in series to the conductor 32 so as to supply or not the microcircuit 28 at the request of the user.

The case 84 is fixed to the back of the watch by snapping on the male 82 and female 80 connectors and by means of a lug 88 under which a thinned part 90 of the case 84 fits.

Instead of being disposed on the lateral face of the watch, the output connector of the electrical battery 70 can be disposed on the back of the watch case in the form of two contacts 100 and 102 (Figures 10 and 11) which cooperate respectively with two studs 104 and 106 on a case 108 containing the electronic microcircuit 28, the antenna coil 14 and the electrical conductors 32 and 34.

The studs 104 and 106 are connected to the points A and B of the electronic microcircuit 28 by the electrical conductors 32 and 34, one of which is provided with a microswitch 110 actuated by the user.

5 The case 108 is fixed to the back of the watch by two brackets 112, 114 which cooperate respectively with two housings 116 and 118 disposed in the back of the watch. The case 108 has a thinned peripheral part 120 for release.

10 When the electrical battery is on a mobile telephone TM (Figure 12), the electronic microcircuit 28 and its antenna are, for example, disposed in a parallelepipedal case 130 having on one face two male contacts, not shown. These two contacts are inserted
15 in female contacts 132 on the mobile telephone, those used for recharging the telephone battery. A microswitch 134 is disposed on an electrical conductor 32 or 34 and is actuated by the user by means of a push button carried by the case 130.

20 Some mobile telephones 138 (Figure 13) are equipped with a connector 140 (Figure 13) in which a card of the bank type can be inserted with a view to adding additional functions to the mobile telephone. In this case, the contactless card 40 of Figure 2A can
25 be inserted in the connector 140 so as to connect its contacts 36 and 38 to the electrical supply contacts of the connector 140. The switch 142 is disposed on the mobile telephone 138.

30 It should be noted that the switch 60 or 142 is carried by the card holder PC or the mobile telephone

138, which contains the electrical power source, whilst the switch 86 or 134 is carried by the case 84 or 130, which contains the microcircuit 28.

5 It should be noted that the electrical power source can be a rechargeable battery, an electrical battery, removable or not, or so-called solar cells, for example of the photovoltaic type.

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CLAIMS

1. A contactless electronic electromagnetic communication device of the type comprising in a module (MC):

- 5 - means (10) of receiving electromagnetic signals,
- means (18, 20, 24) of processing the electromagnetic signals received, and
- means (26) of rectifying and filtering the electromagnetic signals received in order to supply, at
- 10 two output terminals (A, B), a supply voltage (V_{CC}) to the processing means (18, 20, 24),
- characterised in that it also comprises
- means (PC, MO, TM 138) of supporting an electrical power source (48, 70), and
- 15 - means (36, 38, 56, 58, 80, 82, 100, 102, 104, 106, 132, 140) of connecting the said electrical power source (48, 70) to the said output terminals (A and B) of the rectifying and filtering circuit (26).

2. A device according to Claim 1, characterised

20 in that the connection means comprise a switch (60, 86, 110, 134, 142) for establishing or cutting off the connection between the power source (48, 70) and the terminals (A, B) of the rectifying and filtering circuit (26).

25 3. A device according to Claim 1 or 2, characterised in that the connection means comprise:

- in the module (MC), conductors (32, 34) for connecting the output terminals (A, B) of the

rectifying and filtering circuit to first contact terminals (36, 38, 82, 104, 106),

- in the support means, conductors (50, 52) for connecting the electrical power source (48, 70) to
5 second contact terminals (56, 58, 80, 100, 102, 132, 140), and

- means for connecting together the said first and second contact terminals.

4. A device according to Claim 3, in its
10 application to a contactless module (MC) carried by a card of the bank type, characterised:

- in that the means of supporting the electrical power source comprise a card holder (PC), and

- in that the means of connecting and holding the
15 said first (36, 38) and second (56, 58) contact terminals comprise means of guidance and abutment (42, 44, 46) for the card (40) in the card holder (PC) so as to make the said first and second contact terminals coincide.

5. A device according to Claim 3, in its
20 application to a contactless module (MC) disposed in a case (84), characterised:

- in that the means of supporting the electrical power source comprise a watch (MO) having its own
25 electrical power (70),

- in that the first contact terminals comprise a connector (82) disposed on the case (84) of the module,

- in that the second contact terminals comprise a connector (80) disposed on the case (72) of the watch
30 (MO), and

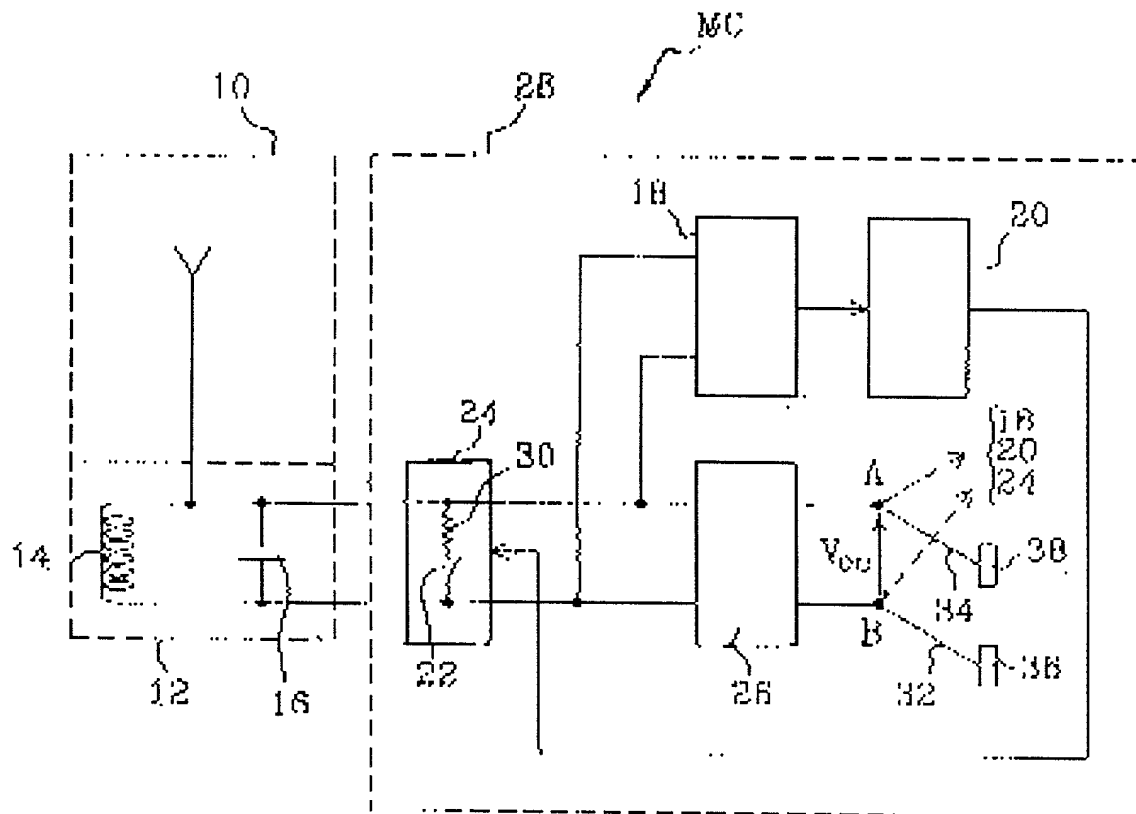


FIG.1

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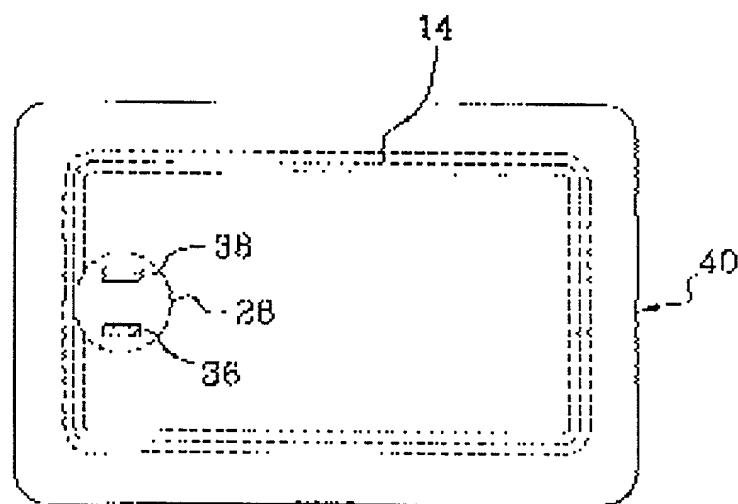


FIG. 2A

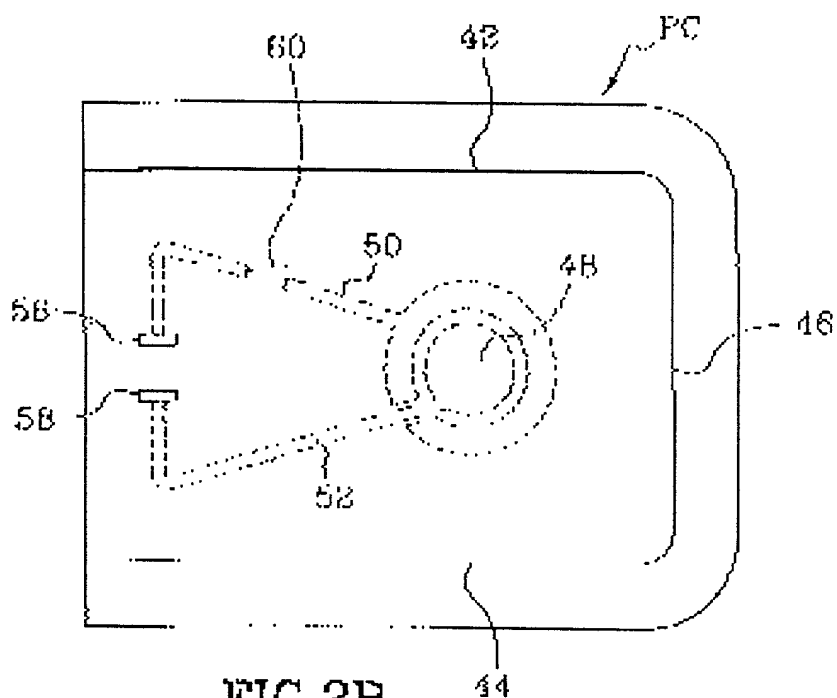


FIG. 2B

FIG. 2A

FIG. 4

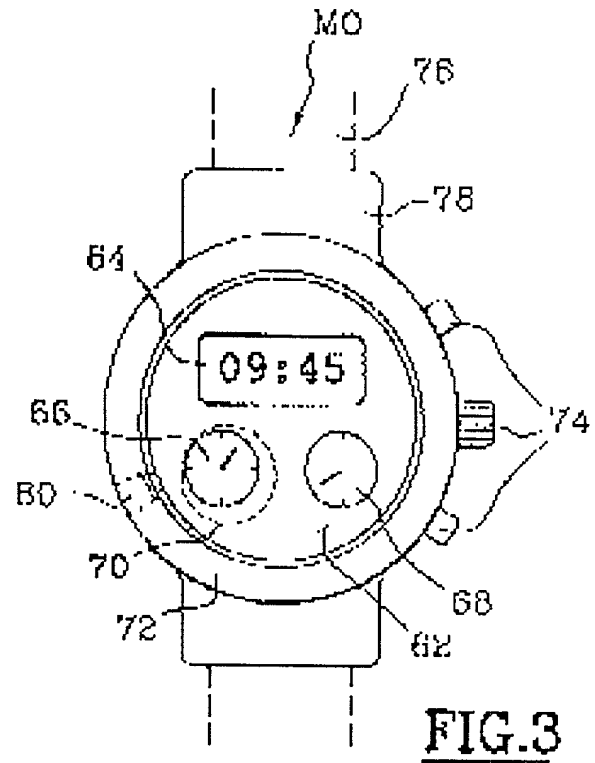
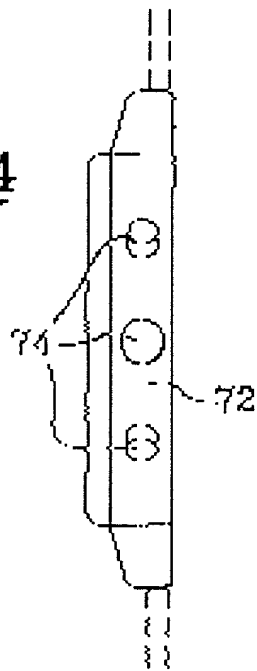


FIG. 3

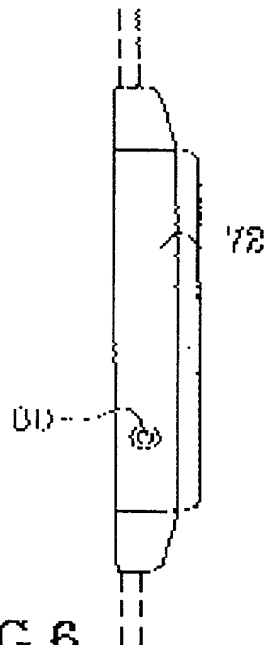


FIG. 6

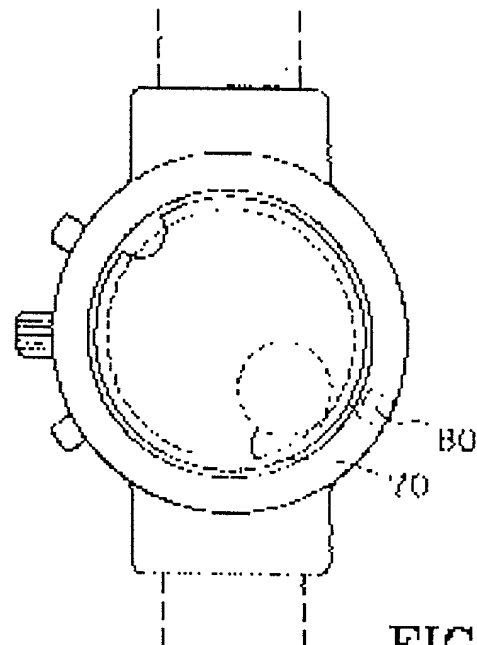


FIG. 5



FIG. 7

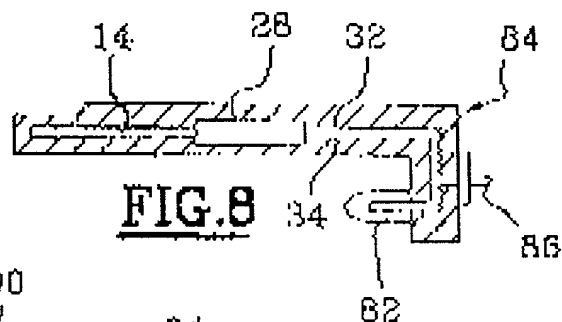


FIG. 8

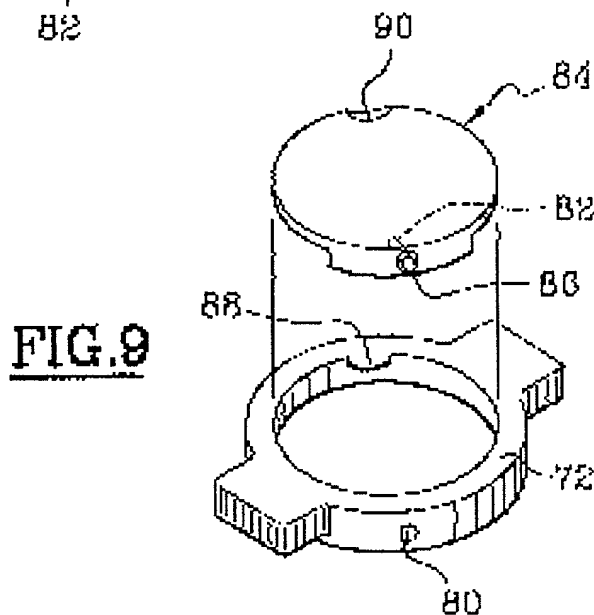


FIG. 9

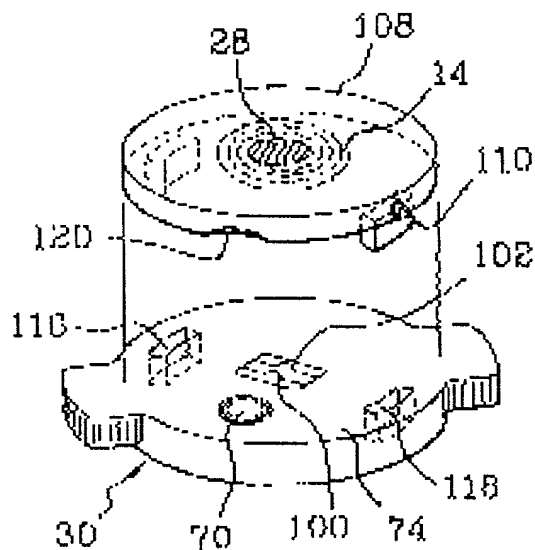


FIG. 10

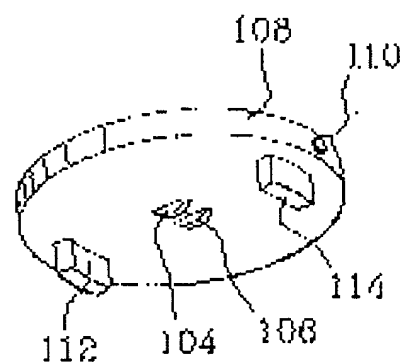


FIG. 11

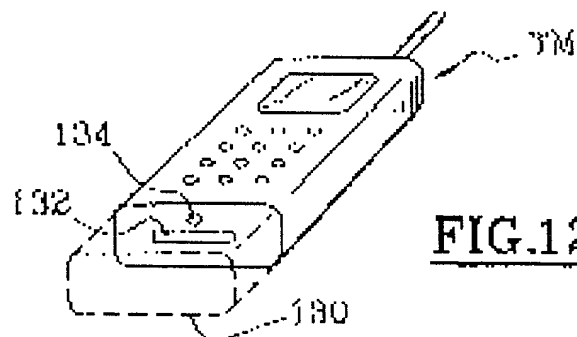


FIG. 12

FIG. 10

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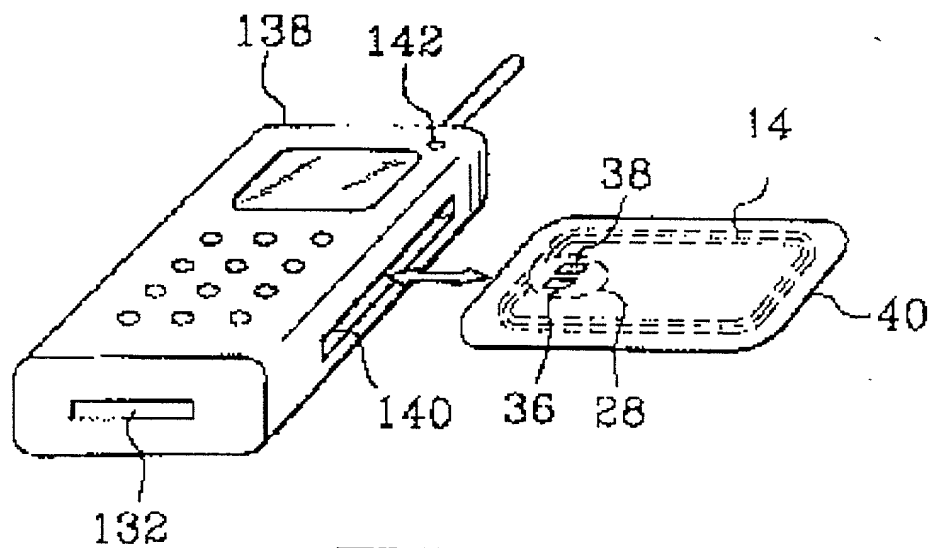


FIG.13

COMBINED DECLARATION AND POWER OF ATTORNEY
FOR UTILITY PATENT APPLICATION

Attorney's Docket No.
GEM589

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I BELIEVE I AM THE ORIGINAL, FIRST AND SOLE INVENTOR (if only one name is listed below) OR AN ORIGINAL, FIRST AND JOINT INVENTOR (if more than one name is listed below) OF THE SUBJECT MATTER WHICH IS CLAIMED AND FOR WHICH A PATENT IS SOUGHT ON THE INVENTION ENTITLED:

Contactless electronic communication device with optional auxiliary power source

the specification of which

(check one)

☐ is attached hereto;

☐ was filed on _____ as

Application No. _____

And was amended on _____
(if applicable)

☐ was filed as PCT international application n° _____ on _____ 1999

I HAVE REVIEWED AND UNDERSTAND THE CONTENTS OF THE ABOVE-IDENTIFIED SPECIFICATION, INCLUDING THE CLAIMS, AS AMENDED BY ANY AMENDMENT REFERRED TO ABOVE;

I ACKNOWLEDGE THE DUTY TO DISCLOSE TO THE OFFICE ALL INFORMATION KNOWN TO ME TO BE MATERIAL TO PATENTABILITY AS DEFINED IN TITLE 37, CODE OF FEDERAL REGULATIONS, Sec. 1.56 (as amended effective March 16, 1992);

I do not know and do not believe the said invention was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to said application; that said invention was not in public use or on sale in the United States of America more than one year prior to said application; that said invention has not been patented or made the subject of an inventor's certificate issued before the date of said application in any country foreign to the United States of America on any application filed by me or my legal representatives or assigns more than twelve months prior to said application;

I hereby claim foreign priority benefits under Title 35, United States Code Sec. 119 and/or Sec. 365 of any foreign application(s) for patent or inventor's certificate as indicated below and have also identified below any foreign application for patent or inventor's certificate on this invention having a filing date before that of the application(s) on which priority is claimed:

COUNTRY/INTERNATIONAL	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED
FRANCE	98/15543	07/12/1999	YES
			YES

I hereby appoint the following attorneys and agent(s) to prosecute said application and to transact all business in the Patent and Trademark Office connected therewith and to file, prosecute and to transact all business in connection with international applications directed to said invention:


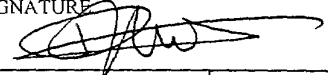
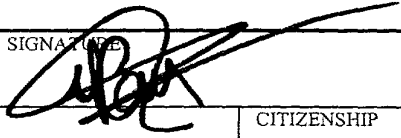
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~~NY 10185-0293~~

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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